

## CLAIMS

1. An organic electroluminescent device comprising a pair of electrodes and a light emitting layer, a hole transport layer containing a hole transporting material, and an electron transport layer provided between the pair of electrodes wherein,

the light emitting layer contains at least two host materials and at least one red phosphorescent material, and

the hole transporting material in the hole transport layer has a small ionization potential than the two host materials in the light emitting layer.

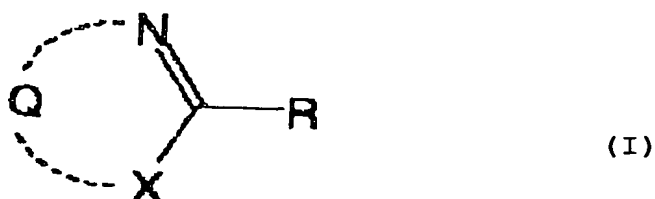
2. The organic electroluminescent device of claim 1, wherein the at least one red phosphorescent material in the light emitting layer has a lowest triplet state energy level of 167.6 kJ/mol to 230.5 kJ/mol.

3. The organic electroluminescent device of claim 1, wherein all the host materials in the light emitting layer are non-metal-complex compounds.

4. The organic electroluminescent device of claim 3, wherein at least one of the host materials in the light emitting layer is a compound having a heterocyclic

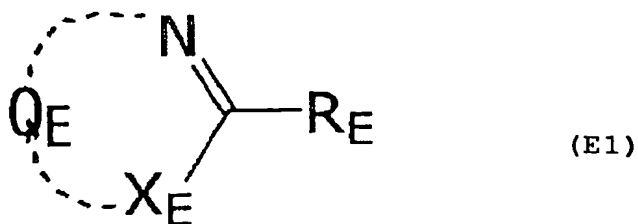
skeleton containing at least two hetero atoms.

5. The organic electroluminescent device of claim 4, wherein the compound having a heterocyclic skeleton containing at least two hetero atoms is represented by the formula (I):



wherein R represents a hydrogen atom or a substituent; X represents -O-, -S-, =N- or =N-Ra; Ra represents a hydrogen atom, an aliphatic hydrocarbon group, an aryl group or a heterocyclic group; and Q represents an atomic group necessary to form a condensed heterocyclic ring together with N and X.

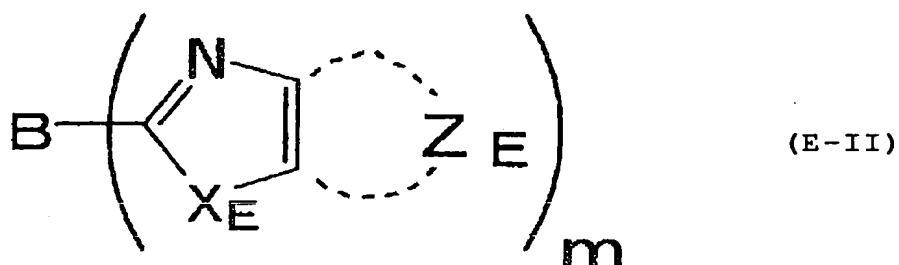
6. The organic electroluminescent device of claim 1, wherein the electron transport layer contains a compound represented by the formula (E1):



wherein R<sub>E</sub> represents a hydrogen atom or a substituent; X<sub>E</sub>

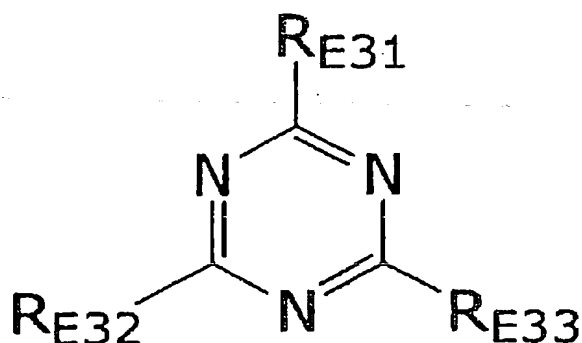
represents -O-, -S-, =N- or =N-R<sub>a</sub>; R<sub>a</sub> represents a hydrogen atom, an aliphatic hydrocarbon group, an aryl group or a heterocyclic group; and Q<sub>E</sub> represents an atomic group necessary to form a heterocyclic ring together with N and X<sub>E</sub>.

7. The organic electroluminescent device of claim 6, wherein the compound represented by the formula (E1) is a compound represented by the formula (E-II):



15 wherein X<sub>E</sub> represents -O-, -S-, =N- or =N-R<sub>a</sub>; R<sub>a</sub> represents a hydrogen atom, an aliphatic hydrocarbon group, an aryl group or a heterocyclic group; Z<sub>E</sub> represents an atomic group necessary to form an aromatic ring; B represents a linking group; and m represents an integer of 2 or greater.

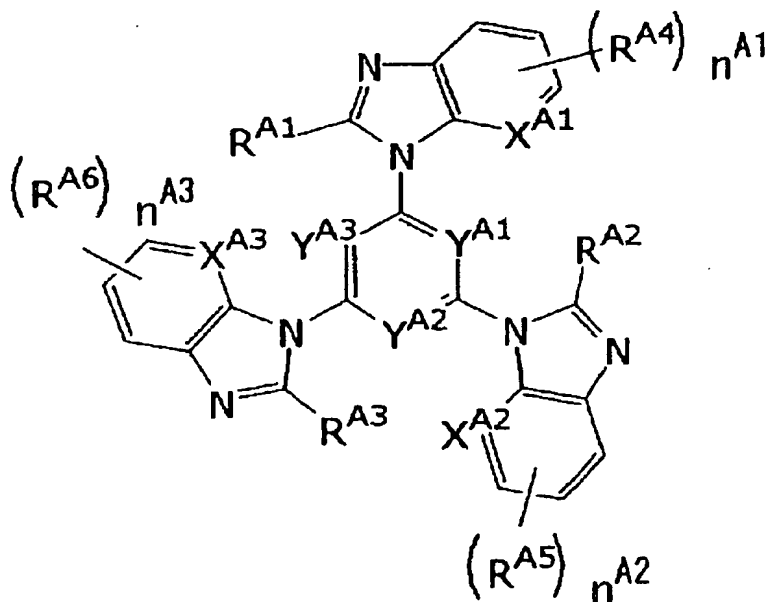
8. The organic electroluminescent device of claim 6, wherein the compound represented by the formula (E1) is a compound represented by the formula (E-III):



(E-III)

wherein  $R_{E31}$ ,  $R_{E32}$ , and  $R_{E33}$  each represent a hydrogen atom, an aliphatic hydrocarbon group, an aryl group or a heterocyclic group.

- 10            9. The organic electroluminescent device of claim 6, wherein the electron transport layer contains a compound represented by the formula (E-IV):



(E-IV)

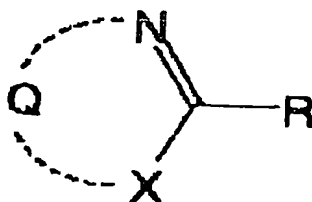
25            wherein  $R^{A1}$ ,  $R^{A2}$ , and  $R^{A3}$  each represent a hydrogen atom or an aliphatic hydrocarbon group;  $R^{A4}$ ,  $R^{A5}$ , and  $R^{A6}$  each

represent a substituent;  $n^{A1}$ ,  $n^{A2}$ , and  $n^{A3}$  each represent an integer of 0 to 3;  $X^{A1}$ ,  $X^{A2}$ , and  $X^{A3}$  each represent a nitrogen atom or C-R<sup>x</sup>; R<sup>x</sup> represents a hydrogen atom or a substituent;  $Y^{A1}$ ,  $Y^{A2}$ , and  $Y^{A3}$  each represent a nitrogen atom or C-R<sup>yx</sup>; and R<sup>yx</sup> represents a hydrogen atom or a substituent.

10. An organic electroluminescent device comprising a pair of electrodes and a light emitting layer, a hole transport layer, and an electron transport layer provided between the pair of electrodes, the hole transport layer and the electron transport layer adjoining the light emitting layer, wherein

the light emitting layer contains at least two host materials and at least one red phosphorescent material, and

at least one of the host materials in the light emitting layer is a compound represented by the formula (I):



(I)

wherein R represents a hydrogen atom or a substituent; X represents -O-, -S-, =N- or =N-Ra; Ra represents a

hydrogen atom, an aliphatic hydrocarbon group, an aryl group or a heterocyclic group; and Q represents an atomic group necessary to form a condensed heterocyclic ring together with N and X.